Benefits of Using The Entire System Server

This section covers the following topics:

- General Information
- Increased Flexibility and Productivity
- Cost Reduction
- Improved Machine Performance

General Information

The benefits of using the Entire System Server as basic technology in a heterogeneous corporate data processing environment can be summed up as:

- Increased flexibility and productivity for all personnel involved in data processing;
- Reduced costs in system maintenance and training;
- Improved machine performance.

This section analyses these benefits in more detail.

Increased Flexibility and Productivity

- Application Programming
- Power to the User
- Data Center

Use of the Entire System Server increases the flexibility and productivity of all personnel involved in data processing: from the system programmer managing the storage media and optimizing machine performance,by way of the application developer including operating system information and services in his or her programs, right up to the end-user retrieving an output file stored in an automated office system.

Application Programming

Incorporating Entire System Server functionality in applications written in Natural, application programmers are provided with capabilities that include Read and Write access to files, file allocation and maintenance, job status display and spool queue display.

This relieves data center personnel of much routine work, and enables the development of applications that automate certain time-consuming procedures and functions, signalling an end of the distinction between online and batch processing.

For example, a batch job can be built using program logic, and can be submitted, its progress monitored, and its output data read into the program without any interruption.

This integration of operating system functions and information in application development allows the simple and quick realization of much more powerful applications. In particular, application developers are given more control over system resources.

Like the data center, the application development department becomes much more productive and efficient at no extra training or labor cost, as the added capabilities provided by the Entire System Server are available to the application programmer without leaving the Natural environment.

Power to the User

At the high end of data processing, applications based on the Entire System Server allow the selective delegation of more processing power to the end-users, who can use standardized interfaces written for them to access the operating system to perform such functions as allocate their own files, display the spool queue, and track the progress of jobs.

The Entire System Server thus answers a basic need in modern enterprise computing. An increasing number of corporations are following the general trend of decentralizing their data processing activities. They are moving away from the large, central mainframe towards mid-range computers and workstations installed in the departments, all interlinked within a computer network to provide selective processing power where it is needed most: in the hands of the user.

In combination with Entire Net-Work, applications based on the Entire System Server can serve such a distributed environment and provide a single system image across the whole network. Users can control their own environments without troubling the data center, which can get on with the logistical tasks of network management, event management, software distribution and workload balancing.

Data Center

The Entire System Server allows Natural programs to be written to satisfy unique, site-specific requirements in the areas of system maintenance (disk and file), job submission and management, resource management, accounting data (SMF) and system console operations. This enables data center staff to respond quickly and flexibly to problems and questions arising from the user community:

- All system queries have a common syntax, meaning that the system programmer or computer operator can concentrate on getting the job done, rather than worrying about how to do it. There is no need to become embroiled in the details of the operating system structure and use complicated Assembler routines;
- Required information is easily accessed using simple but powerful statements or commands, allowing system programmers to deal quickly with adhoc requests and react to problems before they become critical;
- The use of Entire Net-Work in a multi-computer environment allows access to information located at remote sites. Additionally, a whole heterogeneous computer network can be controlled from a single location.

All these points make system programmers and computer operators much more efficient and productive members of staff. With the use of the Entire System Server, the data center becomes the nerve center of distributed corporate data processing.

Cost Reduction

Whichever way corporate decisions concerning their data processing methods go, whether it be towards a distributed environment or back to central mainframes, the Entire System Server protects investments in existing applications and thus helps ensure that the time and costs involved in changes to the hardware are kept at a minimum.

In the day-to-day running of data processing operations, a range of different software vendor products were traditionally required, which do not communicate with each other and often have no programming interface (API). The use of the Entire System Server alleviates this problem and can help cut costs in a number of areas:

- **Labor and training costs:**
  To support the increasing number of heterogeneous computer networks using traditional methods of system programming, expert knowledge of the various hardware and operating system configurations had to be condensed in a small team of staff. Such system programmer expertise is rare and expensive, as is the cost of training to acquire such expertise.
  Additionally, the typical tools for data center operations are Assembler programs, which are complicated and expensive to code. The use of the Entire System Server eliminates the need to know the details of hardware and operating system structures. Through the automated facilities provided by Natural, fewer lines of code need to be generated for a Natural application than for applications written in traditional languages. Simple Natural programs can therefore replace complex Assembler routines, and system programmers can implement tools

with a minimum of training and effort. The Entire System Server can thus reduce labor and training costs significantly.

Making operating system information and services available to application programmers using the Entire System Server also helps save training costs in the application development department, as the operating system can be accessed using Natural statements already familiar to Natural programmers.

- **Storage device costs:**
  Using the Entire System Server, flexible programs for managing storage devices (DASD) and datasets can be written and implemented. For example, programs can manage DASD space optimally by freeing unused space, generating reports on datasets and relocating datasets if necessary. Optimal management of such system resources using site-specific Natural programs helps reduce the number of storage devices required.
- **Service costs:**
  User queries to the data center concerning information such as the position of jobs in the job queue, the status of jobs or printouts are time-consuming and distract data center personnel from their system programming tasks. Though the Entire System Server can be used to satisfy such requests quickly and efficiently, the best solution is to build Natural applications with customized user interfaces to function as an online "help desk" that allows users to retrieve such information themselves. This eliminates the cost of having an information service provided by the data center.

Improved Machine Performance

The use of the Entire System Server can lead to an improvement in machine performance.

For example, running the Entire System Server and starting Natural programs under a TP-monitor (Com-plete, CICS, IMS, UTM etc.) makes information available to the user that he or she could previously only obtain by running batch jobs or utility jobs (TSO, TIAM).

Operating system information accessed via Natural programs can be used either for pure retrieval purposes (display) or to control the system as components of a Natural application. This makes it possible to reduce the machine workload, as fewer TSO or TIAM users means less occupied storage, and it also helps prevent system shortages or failures.

